



Keble College / University of Oxford



SEMINAR SERIES / Michaelmas 2013

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## ‘The ghost of nestedness in ecological networks’

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**Tuesday 5<sup>th</sup> November, 12.30 -14.00**  
**Roy Griffiths Room (ARCO), Keble College**

### ABSTRACT:

Nestedness is a community-level pattern in which the interactions of specialists are contained within that of generalists, as in Russian dolls. This pattern has been observed across many types of ecological network where it is thought to promote biodiversity in mutualistic systems. Traditionally, nestedness has been treated in a binary sense: species and their interactions are either present or absent, neglecting information on abundances and interaction frequencies.

Using new spectral graph techniques applicable to both binary and quantitative data, I show that complex ecological networks are indeed binary nested, but quantitative species preferences are distinctly non-nested, indicating limited consumer overlap of favoured resources. This spectral approach also provides a formal link to local dynamical stability analysis, where I demonstrate, contrary to the prevailing view, that nested mutualistic structures are, in fact, minimally stable.

